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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/922,885	08/06/2001	Rajiv Laroia	56115534-121624	9064

22046 7590 05/31/2005

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EXAMINER

TSE, YOUNG TOI

ART UNIT	PAPER NUMBER
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2637

DATE MAILED: 05/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

8m

Office Action Summary

Application No.

09/922,885

Applicant(s)

LAROIA ET AL.

Examiner

YOUNG T. TSE

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-6 is/are allowed.
- 6) ☒ Claim(s) 8-16 and 24-30 is/are rejected.
- 7) ☒ Claim(s) 7 and 17-23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claims 7 and 14-30 are objected to because of the following informalities:

In claim 7, lines 3 and 6, "the time" and "the tone frequency" should be "time" and "tone frequency", respectively.

In claim 14, line 1, "synchronizer" should be "synchronization".

In claim 15, line 6, "the first measure" appears to read "the second measure".

In claim 16, line 3, "the tone frequency" should be "tone frequency".

In claim 17, line 7, "a first and second phase rotations" should be "first and second phase rotations".

Wherein claims 18-21 depend from claim 17.

In claim 22, line 5, "estimating" should be "estimating means".

In claim 23, line 4, "the tone frequency" should be "tone frequency".

In claim 24, line 1, "computer readable form" appears to read "computer readable medium".

In claim 25, line 2, "an initial time" should be "the initial time".

Wherein claims 26-28 depend from claim 24.

In claim 29, line 2, "a function of the with" should be "a function of".

In claim 30, line 3, "the tone frequency" should be "tone frequency".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 8-16 and 24-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 lacks cooperation among the steps of setting, across time phase rotating, transforming and across frequency phase rotating. Also see claim 24 of a module for transforming and a module for across frequency phase rotating.

In claim 15 (lines 2, 4, 5 and 7), claim 24 (line 9), claim 25 (lines 2-3), claim 26 (line 1), claim 27 (line 1), and claim 29 (lines 3 and 6), the phrases "the phase rotation controller", "the channel estimator", "the pilot symbols", "the signal containing pilot symbols", and "the synchronizing of the signal by the processor" all lack antecedent basis.

In claim 24, lines 11-12, the phrase "... for extracting and estimating" is vague and indefinite since it is unclear what are extracting and estimating.

The claimed subject matter of claim 27 is not understood.

In claim 29, lines 2 and 5, the phrases "the phase rotating across time controlled as a function of the channel estimate ..." and "the phase rotating across frequency controlled as a function of the channel estimate ..." are not understood since the claimed subject matter is not recited in claim 24.

Wherein claims 9-14 and 16 depend from claim 8.

Wherein claims 28 and 30 depend from claim 24.

Allowable Subject Matter

4. Claims 1-6 are allowed.
5. Claims 7 and 17-23 would be allowable if rewritten or amended to overcome the objection(s) set forth in this Office action.
6. Claims 8-16 and 24-30 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.
7. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to show or suggest that a method and apparatus of synchronization for use in a pilot assisted channel estimation orthogonal frequency multiplexing system comprising circuitry for controlling a phase rotation across time prior to a fast Fourier transformation and a phase rotation across frequency after the fast Fourier transformation as a function of a channel estimation.

Conclusion

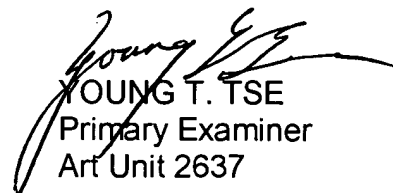
8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

References Bruckert et al., Leib, Rosenlof, Crawford, and Cimini, Jr. et al. are made of record as describing a related method and apparatus of synchronization of controlling phase or frequency rotation for use in an OFDM communications system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOUNG T. TSE whose telephone number is (571) 272-3051. The examiner can normally be reached on Monday and Wednesday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


YOUNG T. TSE
Primary Examiner
Art Unit 2637